

Memphis Depot

Main Installation Remedial Design (RD)

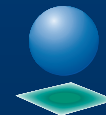
Presented by:

David D. Nelson, P.G.
Project Manager, CH2M Hill

Public Briefing
July 21, 2005



U.S. Army Engineering
and Support Center,
Huntsville



CH2MHILL

Depot's CERCLA Status



Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)

- Remedial Investigation (RI)
- Feasibility Study (FS)
- Proposed Plan (PP)
- Record of Decision (ROD)
- Remedial Design
- Remedial Action

Key decision-making
stages completed



Project Background

- **Final Main Installation (MI) Record of Decision (ROD) completed September 2001**
 - Groundwater and soil remedy: Enhanced Bioremediation, Monitored Natural Attenuation (MNA), Land Use Controls
- **Main Installation RD completed July 2004**
- **Public Briefing required prior to start of Remedial Action**
 - Proposed schedule
 - Potential impacts (noise, traffic disruptions, health and safety requirements, etc.) associated with construction and/or remedial action activities



MI RD Objectives

- Prevent installation of (future) onsite drinking-water wells
- Restore groundwater to drinking water standards
- Prevent offsite migration of groundwater containing Chlorinated Volatile Organic Compounds (CVOCs) that exceed drinking water standards



Remedy Selection

- **Enhanced Bioremediation Treatment (EBT) Pilot Study**
 - Year-long study completed in 2003
- **Conclusions:**
 - Sodium lactate injections in areas with highest CVOC concentrations
 - **Significantly reduced concentrations**
 - Two years of injections required to meet cleanup objectives in source areas
 - Radius of influence (ROI) approx. 30 feet from injection points
 - Natural attenuation will treat breakdown products and CVOCs in lower concentration areas

Remedial Action Implementation



Remedial Action Work Plan:

- Will be reviewed and approved by Environmental Protection Agency (EPA) and Tennessee Department of Environment and Conservation (TDEC)
- Final injection and monitoring well locations
- Sodium lactate injection procedures
- Groundwater monitoring plan
- Health and safety plan addendum
 - Air monitoring
 - Personal protective equipment for workers
 - Cleaning protocol for equipment
- Work Plan will be available in Information Repositories



Remedial Action Implementation

Beginning Winter 2005/06

- **Injection wells**
 - 37 wells in Treatment Area 1
 - Southwest corner of MI
 - 12 new wells in Treatment Area 2
 - Southeast corner of MI
- **Additional monitoring wells to ensure effectiveness of treatment**



Remedial Action Implementation

- **Storage and transfer facility**
 - Sodium lactate and supplies
 - Existing building 309 (Northeast of MI)
- **Injection strategy**
 - Bi-weekly for one year, then monthly
 - Modifications can be made based on monitoring results

Trailer-Mounted Injection System



MI Performance Monitoring



- Long-term groundwater monitoring for treatment and MNA effectiveness
- Field and laboratory samples
 - CVOCs
 - Geochemistry
- Water levels
- Injection system
 - Operations and Maintenance
- 5-Year Review
 - EPA and TDEC will review treatment at five-year intervals



Project Schedule – Next Steps

Winter 2005-06

- **Begin Main Installation Remedial Action**
 - **Enhanced Bioremediation**

2008

- **Receive EPA Operating Properly and Successfully determination for the MI RA**

Memphis Depot

Main Installation Remedial Design (RD)

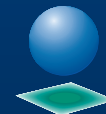
Presented by:

**David D. Nelson, P.G.
Project Manager, CH2M Hill**

**Public Briefing
July 21, 2005**



**U.S. Army Engineering
and Support Center,
Huntsville**



CH2MHILL